June 1951. They are tracked by ground direction-finding stations throughout their flights. When the balloons descend to 30,000 feet they are automatically deflated and the recording equipment is parachuted to the ground.

Audio Engineering

New Quarterly Journal Established

The *Journal of the Audio Engineering Society*, a new medium for the publication of review and original research articles on broadcast audio systems, the recording and reproduction of sound (musical and otherwise), and certain other topics of particular interest to the professional audio engineer, has been established as the Society's official publication. Volume I, Number 1 of the new journal, which is expected to be issued early in March, contains thirty papers presented last October at the fourth annual meeting of the Audio Engineering Society in New York City. Published under the editorship of Lewis S. Goodfriend, the journal will appear four times each year and will include book reviews and other items of current interest. The annual subscription price of the quarterly has been set at $8.00 for nonmembers; it will be distributed to members of the Society without charge. The address of the journal's editorial office is P.O. Box 12, Old Chelsea Station, New York 11, N. Y.

Miscellany

The Atomic Energy Commission is reported to have allocated $250,000 for studies of the feasibility of high-energy synchrotron focusing by alternating-gradient magnetic and electric fields, a technique that is hoped to make possible the construction of accelerators with energies conceivably ranging upwards as high as 100 Bev. The studies will be carried out by groups at Brookhaven National Laboratory, Princeton University, and at Harvard and the Massachusetts Institute of Technology. The theoretical basis for alternating-gradient focusing was described in the paper by Ernest D. Courant, M. Stanley Livingston, and Hartland S. Snyder, *Phys. Rev.* **88**, 1190 (1952).

AEC chairman Gordon Dean, according to reports from Washington, has indicated that he intends to return to private law practice upon the expiration of his term of office this year. President Eisenhower will thus have two vacancies to fill in the Commission since no replacement has been appointed to succeed T. Keith Glennan, who resigned last November to return to his post as president of the Case Institute of Technology.

A panel of specialists in geophysics, geology, and mining representing industry, government, and universities has been established to advise the National Science Foundation on policy questions relating to the development of the mineral resources of the United States.

Proposed American Standard specifications for meters to measure television and radio noise at both medium and very high frequencies have been circulated on a trial and study basis, the American Standards Association has announced. The specifications are expected to make it possible to develop meters of uniform characteristics for measuring radio noise to which TV and radio equipment will be subjected when operating in the range between twenty and one thousand megacycles. Copies of the Standard are available from the Association at 70 East 45th Street, New York 17, N. Y., at 60¢ per copy.

Confirmation of the value for the half life of polonium reported from Los Alamos in 1949 by W. H. Beamer and W. E. Easton has been announced by the Bureau of Standards, where recent experiments with the NBS ice calorimeter have shown agreement with the 1949 value (138.3 ± 0.1 days) within less than one part in a thousand.

Accurate analysis of x-rays in the energy range between 0.2 and 12 Mev has been made possible, according to the National Bureau of Standards, by the development of the magnetic Compton spectrometer, designed under the direction of H. O. Wyckoff, J. W. Motz and W. Miller of the NBS staff. Bridging the gap left by other types of x-ray spectrometers, the instrument has been used in an analysis of gamma rays emitted from the Los Alamos water boiler and the fast reactor. Measurements of x-ray intensities and energies with the spectrometer can be helpful in determining the amount of shielding required for protection against radiation from high voltage machines and nuclear reactors.

Two cobalt 60 gamma-ray sources, activated in the Brookhaven reactor, have been shipped to non-AEC laboratories for investigations to determine the effects of exposing foods, pharmaceutical products, and other materials to large amounts of radiation. Columbia University has received a 5000 curie cobalt cylinder for use in an AEC-supported research project on chemical and biochemical systems. The other source, consisting of four cylinders and a rod, which can be nested or used in various combinations, is rated at 4500 curies and has been made available to the Stanford Research Institute, Stanford, California, for use on an unrestricted basis in experiments aimed at developing industrial uses for radiation.

A computing center for AEC work in the northeastern United States is being established in New York City under contract with New York University, and one of the UNIVAC computers constructed for the Commission by Remington Rand's Eckert-Mauchly Division will be installed at NYU this month. The University announced in January the creation of its new Institute of Mathematical Sciences under the scientific direction of Richard Courant. The Institute will be made up of a division of mathematics and mechanics, a division of mathematical research, and a division of computing services.

A new series of atomic tests is slated to begin this month at the AEC's Nevada proving ground near Las

Vegas, with participation by the Department of Defense, the Federal Civil Defense Administration, and other agencies.

Grants and Scholarships

Research Corporation, nonprofit foundation for the support of scientific research, made a total of 258 grants during the past fiscal year, amounting in all to $797,689, according to its annual report published on January 28th.

Central Scientific Company will offer two scholarships for graduate study in the physical sciences or engineering for the academic year 1953–54. The scholarships, which are limited to U. S. citizens, will provide an award of $1000 for a student working for his master's degree and $1500 for a student at the doctor's level. Those interested should apply not later than April 15th to the Scholarship Committee, Central Scientific Company, 1700 Irving Park Road, Chicago 13, Illinois. Applications should include personal data, school chosen for graduate study, courses contemplated, some description of applicant's research problem, and a transcript of college credits.

The Texas A. & M. College department of oceanography has announced graduate and research assistantships in physical oceanography, available to outstanding graduates in physics for 1953–54, amounting to $1500 each. Also available are fellowships in engineering oceanography and assistantships in biological, geological, chemical, and meteorological oceanography, providing $900 to $3000 each. Assistants in physical oceanography take standard curricula leading to the MS or PhD degree, as well as additional graduate work in physics and in the basic sciences or in engineering. In the assistantships, duties with the department consist of aiding in the program of oceanographic research sponsored by various government agencies and by industry. Applications should be submitted by March 30, 1953. Most awards will be announced April 15, although additional openings are expected to occur after that date. Further information may be obtained by writing to the Head of the Department of Oceanography, College Station, Texas.

Colleges and Universities

A helium liquifier designed to cool helium and other gases to temperatures as low as $-455°$ F has been placed in operation at Duke University's recently-established low-temperature laboratory, where research is in progress on microwave and radio frequency spectroscopy, superconductivity, and the superfluid behavior of helium. William M. Fairbank, associate professor of physics at Duke, is director of the laboratory.

Spectroscopia Molecular, a mimeographed bulletin of information and news of interest to molecular spectroscopists, is issued monthly (since May 1952) in the international language, Interlingua, by the physics department's spectroscopy laboratory at Illinois Institute of Technology, Chicago 16, Illinois. Forrest F. Cleveland, professor of physics at Illinois Tech, is the editor.

Industry

New developments in British scientific and optical instruments will be a feature of the British Industries Fair this spring when thirty-eight leading British manufacturers will display their products at Olympia Hall in London from April 27 to May 8.

The spring session of the semi-annual X-ray Diffraction School will be held at the plant of North American Philips Company, Inc., 750 South Fulton Avenue, Mount Vernon, N. Y. during the latter part of April. Basic subjects to be covered will include x-ray diffraction, new high and low temperature camera techniques, fluorescence analysis, geiger-counter x-ray spectrometry, and electron microscopy and diffraction.

Bendix Aviation Corporation has announced the formation of a new division for the development and production of digital computors. The new division, which will have its headquarters at Hawthorne, California, proposes to deal with "specific computing problems raised by scientific advances in various industries, in colleges and universities, and in the armed forces".

Resistance Products Company has announced the opening of a new plant at 914 S. 13th Street in Harrisburg, Pa., to provide increased facilities for the manufacture of resistors.

Clarence F. Hale, professor emeritus of physics at New York State Teachers College at Albany, died on January 30th at his home in that city after suffering a heart attack. He was seventy-five years old. A native of South Manchester, Connecticut, Dr. Hale was a graduate of Wesleyan University and received his PhD in inorganic chemistry at Cornell University in 1909. Dr. Hale was professor of physics at Teachers College for thirty-one years prior to his retirement in 1942. He was a visiting professor at Wesleyan from 1942 until 1945.

John J. Hopfield, physicist at the optics division of the Naval Research Laboratory at Bethesda, Maryland, died after a brief illness on January 8th at the age of sixty-one. Born in Poland, Dr. Hopfield was a graduate of the University of Syracuse and received his PhD degree from the University of California at Berkeley in 1924, where he taught until 1930. From 1930 to 1931 he worked at Purdue University on a research fellowship and from there went to the University of Chicago where he worked with A. H. Compton on cosmic radiation. After serving with the Libbey-Owens-Ford Glass Company for almost ten years he joined the staff of the Department of Agriculture in 1942 as a research physicist, and the following year was employed by the National Bureau of Standards. From 1945 to 1951 he did work on solar ultraviolet spectroscopy at the applied physics laboratory research center of The Johns Hopkins University. Dr. Hopfield was a fellow of the American Physical Society and a member of Sigma Xi.